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Simulation of encryption key distribution process based on a multipath radio propagation

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Abstract

The paper addresses a problem of creating a system for generation and distribution of shared secret encryption key based on the physical properties of multipath radio propagation. A multipath radio channel with reciprocal properties is considered as a source of shared randomness, as the phase of the passed through multipath environment signal becomes unpredictable. The paper presents a general block diagram of encryption key generation process. A method for estimating the rate of common secrete encryption key generation is proposed. An influence of physical parameters of the multipath environment on the encryption key generation rate is considered. © 2013 IEEE.

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Keywords

channel reciprocity, Encryption keys distribution, multipath radio propagation, randomness of carrier phase, shared randomness, theoretic security